Claims

1. A modulator of light comprising

an interference cavity for causing interference modulation of the light, the cavity having a mirror, the mirror comprising a corrugated surface.

2. A modulator of light comprising

an interference cavity for causing interference modulation of the light to produce a color condition visible to an observer, the color condition being determined by the spatial configuration of the modulator.

3. The modulator of claim 2 wherein the interference cavity comprises

a mirror and

a supporting structure holding the mirror,

and wherein the spatial configuration comprises the configuration of the supporting structure.

4. The modulator of claim 2 wherein the interference cavity comprises

a mirror, and wherein

the spatial configuration comprises patterning of the mirror.

5. The modulator of claim 2 wherein the interference cavity comprises

a mirror, and

a supporting structure holding the mirror, and wherein the supporting structure is coupled to a rear surface of the mirror.

6. A structure for modulating light comprising modulators of light each including an interference cavity for causing interference modulation of the light, each of the modulators having a viewing cone, the viewing cones of different ones of the modulators being aligned in different directions.

7. The structure of claim 6 in which the viewing cones of the different modulators are aligned in random directions.

8. The structure of claim 6 in which the viewing cones of the modulators are narrower than the viewing cone of the overall structure.

9. A structure for modulating light comprising modulators of light each including an interference cavity for causing interference modulation of the light, and a liquid medium in which the modulators are suspended.

10. A structure for modulating light comprising modulators of light each including an interference cavity for causing interference modulation of the light, and an optical compensation mechanism coupled to the modulators which enhances the optical performance of the structure.

11. The structure of claim 10 in which the mechanism comprises a combination of one or more of a holographically patterned material, a photonic crystal array, a multilayer array of dielectric mirrors, or an array of microlenses.

12. The structure of claim 1 wherein the brightness and/or color are controlled by error diffusion.

13. A modulator of light comprising

an interferometric modulator, and

an optical fiber coupled to the interferometric modulator.

14. The application of claim 13 wherein the IMod is used in the analysis of chemical, organic, or biological components.

15. An information printing system comprising

an array of interference modulators of light,

a lens system, and

a media transport mechanism.

16. An image capture system comprising

an array of interference modulators of light,

a lens system, and

a media transport mechanism.

17. An information projection system comprising

an array of interference modulators of light,

a lens system,

mechanical scanners, and

control electronics.

18. The system of claim 17 in which the control electronics are configured to generate projected images for virtual environments.

19. The application of claim 18 in which the array includes liquid crystals or microelectromechanical modulators.

20. A product comprising

an operational element, a display element,

a housing enclosing the operational element and having a display element, the display element including a surface viewed by a user, and

an array of interference modulators of light on the surface.

21. The product of claim 20 in which the operational element comprises a personal communications device.

22. The product of claim 20 in which the operational element comprises a personal information tool.

23. The product of claim 20 in which the operational element comprises a vehicular control panel.

24. The product of claim 20 in which the operational element comprises an instrument control panel.

25. The product of claim 20 in which the operational element comprises a time keeping device.

26. The product of claim 20 in which the operational element comprises an article of clothing or portion thereof.

27. The product of claim 20 in which the operational element comprises an item of jewelry.

28. The product of claim 20 in which the operational element comprises a sporting good.

29. The product of claim 20 in which the array substantially alters the aesthetic or decorative features of the surface.

30. The product of claim 29 in which the aesthetic component responds to a state of use of the consumer product.

31. The product of claim 29 in which the aesthetic component is downloaded or derived from an external source.

32. The product of claim 29 wherein the array also provides information.

33. The application of claim 29 wherein liquid crystals, field emission, plasma, or organic emitter based technologies and associated electronics are used as the modulation array.

34. The device of claim 1 comprising an application incorporating aggregate arrays of IMods.

35. The application of claim 34 wherein the array is used to display information on signs or billboards.

36. A vehicle comprising

a body panel,

an array of interference modulators of light on a surface of the body panel, and

electronic circuitry for determining the aesthetic appearance of the body panel by controlling the array of interference modulators.

37. A building comprising

external surface elements,

an array of interference modulators of light on a surface of the body panel, and

electronic circuitry for determining the aesthetic appearance of the surface elements by controlling the array of interference modulators.

38. A full color active display comprising

a liquid crystal medium, and

interferometric elements embedded in the medium.

39. A structure comprising

a substrate,

micromechanical elements formed on the surface of the substrate, and

electronics connected to control the elements, the electronics being formed also on the surface of the substrate.